

CLAIMS

What is claimed is:

1. A cutting insert, comprising:
 - a top surface;
 - a bottom surface; and
 - at least four convex cutting edges.
2. The cutting insert of claim 1, wherein the cutting insert has four convex cutting edges.
3. The cutting insert of claim 2, wherein the cutting insert further comprises four nose corners connecting the four convex cutting edges.
4. The cutting insert of claim 3, wherein each of the nose corners comprises at least one of a circular arc, a series of circular arcs, and a multi-segment spline curve.
5. The cutting insert of claim 1, wherein the convex cutting edges comprise a circular arc.
6. The cutting insert of claim 2, wherein at least one of the convex cutting edges comprise a circular arc with a radius greater than or equal to two times a radius of the largest circle that may be inscribed on the top surface.
7. The cutting insert of claim 2, wherein at least one of the convex cutting edges comprise a circular arc with a radius greater than or equal to five times a radius of the largest circle that may be inscribed on the top surface.
8. The cutting insert of claim 2, wherein the convex cutting edges comprise a circular arc with a radius greater than or equal to ten times a radius of the largest circle that may be inscribed on the top surface.

9. The cutting insert of claim 5, wherein the convex cutting edges further comprise at least one substantially straight line.
10. The cutting insert of claim 6, wherein the convex cutting edge comprises two substantially straight lines.
11. The cutting insert of claim 6, wherein the convex cutting edge comprises three substantially straight lines.
12. The cutting insert of claim 1, wherein the convex cutting edges comprises at least one of a circular arc, a portion of an ellipse, a portion of a parabola, a multi-segment spline curve, a straight line.
13. The cutting insert of claim 12, further comprising nose corners connecting the convex cutting edges.
14. The cutting insert of claim 1, further comprising a conical clearance surface between the top surface and the bottom surface.
15. The cutting insert of claim 1, further comprising chip breaking geometry on the top surface.